

Rule 74.24 Marine Coating Operations (Adopted 3/8/94, Revised 9/10/96,
11/11/03)

A. Applicability

The provisions of this rule apply to any person who applies, specifies the use of, or supplies coatings for marine and fresh water vessels, drilling vessels, and navigational aids, and their parts or components, including any parts subjected to unprotected shipboard conditions. The provisions of this rule shall not apply to any stationary source whose sole Standard Industrial Classification (SIC) is 3732, Boat Building and Repair or 4493, Marinas.

B. Requirements

1. Except as otherwise provided in this rule, no person shall apply a marine coating with a ROC content in excess of the following general limits, expressed as grams of ROC per liter of coating applied (g/l) or pounds per gallon (lb/gal), less water and exempt organic compounds:

General Limits		
<u>Coating Category</u>	<u>ROC Limit (g/l)</u>	<u>ROC Limit (lb/gal)</u>
Air Dried	340	2.8
Baked	275	2.3

2. Specialty Coating Limits: No person shall apply a marine coating with a ROC content in excess of the following limits, expressed as grams of VOC per liter of coating applied, less water and exempt organic compounds:

Specialty Coating Limits		
<u>Coating Category</u>	<u>ROC Limit (g/l)</u>	<u>ROC Limit (lb/gal)</u>
Air Flask Coatings	340	2.8
Antenna Coatings	340	2.8
Antifoulants Coatings		
Aluminum Substrates	560	4.7
Other Substrates	400	3.3
Heat Resistant Coatings(Air Dried)	420	3.5
Heat Resistant Coatings(Baked)	360	3.0
High Gloss Coatings(Air Dried)	420	3.5
High Gloss Coatings(Baked)	360	3.0
High Temperature	500	4.2
Low Activation Interior	420	3.5
Military Exterior	340	2.8
Navigational Aids	340	2.8
Pretreatment Wash Primer	780	6.5
Repair and Maintenance Thermoplastic	340	2.8
Rubber Camouflage Coatings	340	2.8
Sealant for Wire-Sprayed Aluminum	610	5.1
Special Marking	420	3.5
Specialty Interior	340	2.8
Tack Coat	610	5.1
Undersea Weapons Systems Coatings	340	2.8
Wood Sealer	340	2.8
Zinc-Rich	340	2.8

3. Add-on Control Equipment Option: In lieu of complying with the provisions of Subsections B.1 or B.2, air pollution control equipment may be used provided that:
 - a. The combined control and capture efficiency reduces emissions by at least 85 percent, by weight, and
 - b. Combustion temperature is continuously monitored when operating a thermal incinerator, and
 - c. Inlet and exhaust gas temperature is continuously monitored when operating a catalytic incinerator, and
 - d. Control device efficiency is continuously monitored when operating a carbon adsorber or control device other than a thermal or catalytic incinerator, and
 - e. Written approval for such equipment, in the form of an Authority to Construct and a Permit to Operate is received from the Air Pollution Control Officer (APCO).
4. Surface Preparation and Cleanup Solvent:
 - a. No person shall use organic solvent for cleanup unless:
 - 1) An enclosed gun washer or "low emission spray gun cleaner," which has been approved in writing by the APCO, is properly used for spray equipment cleaning, and
 - 2) The ROC composite partial pressure of the solvent used for cleanup, including spray equipment cleanup, is less than 45 mm Hg at 20°C.
 - b. No person shall use ROC-containing materials which have more than 200 grams of ROC per liter of material for substrate surface preparation prior to coating.
5. Storage of ROC-Containing Materials: All ROC-containing materials shall be stored in nonabsorbent, nonleaking containers, which shall be closed except when adding or removing materials.
6. Prohibition of Specification: No person shall solicit, require for use, or specify the application of any coating, if such use or application results in a violation of the provisions of this Rule. This prohibition shall apply to all written or oral contracts.
7. Compliance Statement Requirement: The manufacturer of any marine coating subject to this rule shall designate on the coating container or on separate data sheets the maximum volatile organic compound (VOC) content of the coating, as supplied. The VOC content shall be expressed as grams per liter of coating (less water and less exempt organic compounds). For zinc-rich coatings, in addition to the VOC content, the weight of total zinc per gallon of coating shall also be provided.

8. Liquid Cleaning Material Compliance Statement: The manufacturer of liquid cleaning materials subject to this rule shall designate on product labels or data sheets the ROC content and ROC Composite Partial Pressure of cleaning materials as supplied. This designation shall include recommendations regarding mixing with any other ROC containing materials, and express the cleaning material ROC content when used in accordance with the manufacturer's recommendations. All letters and numbers used to designate ROC or VOC content on product labels shall be visible and legible.

C. Exemptions

1. The provisions of this rule shall not apply to:
 - a. Solid-film lubricants
 - b. The coating of stationary structures that are subject to Rule 74.2, Architectural Coatings, including, but not limited to bridges, piers, pontoons and installed offshore platforms.
 - c. The coating of metal parts that are subject to Rule 74.12, Surface Coating of Metal Parts and Products. Any marine coating applied to a vessel or to a component exposed to shipboard conditions shall be subject to Rule 74.24.
 - d. Aerosol coating products.
2. Section B of this rule, shall not apply to any stationary source that emits less than 200 pounds of ROC in every rolling period of 12 consecutive calendar months from marine coating operations. Emissions from aerosol products, cold cleaners and vapor degreasers shall not be included in this determination. Any person claiming this exemption shall maintain monthly operational records to substantiate this claim.
3. Subsections B.1 and B.2 of this rule do not apply to any one coating provided:
 - a. No complying coatings are available, and
 - b. Total usage of all noncomplying coatings has not exceeded 55 gallons in any calendar year.

Any person claiming this exemption shall demonstrate the lack of available coatings to the APCO on an annual basis.
4. The provisions of this rule shall not apply to any stationary source whose sole Standard Industrial Classification (SIC Code), as identified by the APCO, is 3732, Boat Building and Repairing, or 4493, Marinas.
5. The provision of Subsection B.4.b of this rule shall not apply to any cleaning solvent, provided the total volume of noncomplying

solvents used does not exceed 5 gallons per year. Any person seeking to claim this exemption shall notify the APCO in writing that a complying solvent is not available.

D. Recordkeeping

Any person subject to this rule shall:

1. Maintain a current file of each coating, catalyst, reducer in use and in storage. This file shall include a data sheet or material list giving material name, manufacturer identification, specific mixing instructions, and VOC content as applied.
2. Maintain a current file of each solvent in use and in storage. This file shall include a data sheet or material list giving material name, manufacturer identification, VOC content, and if required, ROC composite partial pressure.
3. Maintain daily records of the volume of each coating, reducer, and cleanup solvent used. Any person that uses only complying materials may maintain these records on a monthly basis instead of a daily basis.
4. When compliance is achieved through the use of add-on control equipment, maintain records on a daily basis of key system operating parameters and maintenance procedures for the emission control equipment, which will demonstrate continuous operation and compliance during periods of emission producing activities, including, but not limited to:
 - 1) Hours of operation
 - 2) Routine and nonroutine maintenance
 - 3) The applicable information specified in Subsection B.3.
5. Any person claiming the exemption in Subsection C.3, shall maintain records of each noncomplying coating which show on a monthly basis, the coating type, identification and volume of coating applied.
6. Any person claiming the exemption in Subsection C.5 shall maintain records of each noncomplying solvent which show on a monthly basis, the solvent type, identification and volume of solvent used.
7. All records shall be retained for at least two (2) years from the date of each entry and shall be available to District personnel upon request.

E. Test Methods

1. The ROC and solids content of all coatings and cleaning solvents shall be determined using EPA Reference Method 24 (40 CFR Part 60, Appendix A).

2. Exempt organic compounds shall be determined using ASTM D4457-85.
3. The capture and control efficiency of air pollution control equipment shall be determined using methods in 40 CFR 52.741
(a)(4)(iii) - Capture System Efficiency Test Protocols, (a)(4)(vi) - Volatile Organic Material Gas Phase Source Test Methods,
(a)(4)(iv) - Control Device Efficiency Testing and Monitoring and Appendix B of Section 52.741 - Volatile Organic Material Measurement Techniques for Capture Efficiency.
4. ROC composite pressure of a solvent shall be calculated using a widely accepted published source such as: Boublik, T., V. Fried and E. Hala, "The Vapor Pressure of Pure Substances," Elsevier Scientific Publishing Co., New York (1973), Perry's Chemical Engineer's Handbook, McGraw-Hill Book Company, CRC Handbook of Chemistry and Physics, Chemical Rubber Publishing Company (1986-87), and Lange's Handbook of Chemistry, John A. Dean, editor, McGraw-Hill Book Company (1985). The true vapor pressure of a component in a solvent mix may be determined by ASTM Method D2879-86. The ROC composite pressure of a solvent mix consisting entirely of ROC may be determined by ASTM Method D2879-86.
5. The active and passive solvent losses from spray gun cleaning systems shall be determined using SCAQMD's "General Test Method for Determining Solvent Losses from Spray Gun Cleaning Systems" dated October 3, 1989. The test solvent for this determination shall be any lacquer thinner with a minimum ROC composite partial pressure of 105 mm of Hg at 20 °C, and the minimum test temperature shall be 15 °C.
6. The measurement of acid content and solid content of pretreatment wash primers shall be done in accordance with ASTM Method D 1613-85 and D 2369-93, respectively.
7. The measurement of the zinc content of a coating shall be determined in accordance with South Coast Air Quality Management District Method 311, "Determination of Percent Metal in Metallic Coatings by Spectrographic Method."

F. Violations

Failure to comply with any provision of this rule, including the requirement to maintain records or supply VOC or ROC information, shall constitute a violation of this rule.

G. Definitions:

1. "Active Solvent Losses": The active solvent losses are the emissions during all steps of a spray gun equipment cleaning operation and are expressed in units of grams of solvent loss per cleaning cycle.
2. "Aerosol Coating Product"; A pressurized coating product containing pigments or resins that dispenses product ingredients

by means of a propellant, and is packaged in a disposable can for hand held application, or for use in specialized equipment for ground traffic/marketing applications.

3. "Air Dried Coating": Any coating that is cured at a temperature below 90°C (194°F).
4. "Air Flask Coating": A coating applied to the interior surfaces of high pressure breathing air flasks to provide corrosion resistance and which is certified safe for use with breathing air supplies.
5. "Antenna Coating": Any coating applied to equipment and associated structural appurtenances that are used to receive or transmit electromagnetic signals.
6. "Antifoulant Coating": Any coating applied to the underwater portion of a vessel to prevent or reduce the attachment of biological organisms and registered with the Environmental Protection Agency (EPA) as a pesticide.
7. "Baked Coating": Any coating that is cured at a temperature at or above 90°C (194°F).
8. "Cleanup": The removal of uncured coating from any surface.
9. "Coating": A material that is applied to a surface and forms a film in order to beautify and/or protect such surface.
10. "Exempt Organic Compounds": As defined in Rule 2, Definitions, of these Rules.
11. "Grams of ROC per liter of Coating, less water and exempt organic compounds": The weight of ROC per combined volume of ROC and coating solids calculated using the following equation:

$$\begin{array}{l} \text{Grams of ROC per Liter of Coating} \\ \text{Less Water and Exempt Organic Compound} = \frac{Ws - Ww - Wes}{Vm - Vw - Ves} \end{array}$$

where Ws = Weight of volatile compounds (grams)
Ww = Weight of water (grams)
Wes = Weight of exempt organic compounds (grams)
Vm = Volume of material (liters)
Vw = Volume of water (liters)
Ves = Volume of exempt organic compounds (liters)

12. "Grams of ROC per Liter of Material": The weight of ROC per volume of material shall be calculated using the following equation:

$$\begin{array}{l} \text{Grams of ROC per Liter of Material} \\ = \frac{Ws - Ww - Wes}{Vm} \end{array}$$

where Ws = Weight of volatile compounds (grams)
Ww = Weight of water (grams)
Wes = Weight of exempt organic compounds (grams)
Vm = Volume of material (liters)

13. "Gun Washer": Electrically or pneumatically operated system that is designed to clean spray application equipment while enclosed. A gun washer may also be considered a gun cleaning system that consists of spraying solvent into an enclosed container using a snug fitting.
14. "Heat Resistant Coating": Any coating which during normal use must withstand temperatures of at least 204°C (400°F).
15. "High Temperature Coating": Any coating which must withstand temperatures of at least 426°C (800°F).
16. "Low-Activation Interior Coating": A coating used on interior surfaces aboard ships to minimize the activation of pigments on painted surfaces within a radiation environment.
17. "Low emission spray gun cleaner": Any properly used spray equipment cleanup device which has passive solvent losses of no more than 0.6 grams per hour and has active solvent losses of no more than 15 grams per operating cycle as defined by the test method in Subsection E.5.
18. "Marine Coating": Any coating intended by the manufacturer to be applied to marine or fresh water vessels.
19. "Military Exterior": Any exterior topcoat intended by the manufacturer to be applied to military vessels (including US Coast Guard) that are subject to specified chemical, biological, and radiological washdown requirements.
20. "Navigational Aids Coating": Any coating that is used to recoat in-use buoys or other Coast Guard waterway markers.
21. "Operating Cycle": An operating cycle consists of all steps carried out during a cleaning operation.
22. "Passive Solvent Losses": The passive solvent losses are the emissions from spray gun cleaning equipment when the equipment sits idle between cleaning cycles and are a result of natural evaporation from the equipment.
23. "Pretreatment Wash Primer": Any coating which contains at least 1/2-percent acids, by weight, to provide surface etching and contains no more than 12 percent solids, by weight.
24. "Reactive Organic Compounds (ROC)": As defined in Rule 2, Definitions, of these Rules. The term "volatile organic compound"(VOC) is equivalent to ROC.

25. "Repair and Maintenance Thermoplastic Coating": Any vinyl, chlorinated rubber, or bituminous resin coating used for partial recoating over the same coating system.
26. ROC Composite Partial Pressure": The sum of the partial pressures of the compounds defined as ROCs. ROC composite partial pressure is calculated as follows:

$$PP_C = \frac{\sum_{i=1}^n \left(\frac{W_i}{MW_i} \right) VP_i}{\left(\frac{W_w}{MW_w} \right) + \sum_{e=1}^n \left(\frac{W_e}{MW_e} \right) + \sum_{i=1}^n \left(\frac{W_i}{MW_i} \right)}$$

Where:

W_i = Weight of the "i"th ROC compound, in grams

W_w = Weight of water, in grams

W_e = Weight of the "e"th exempt organic compound, in grams

MW_i = Molecular weight of the "i"th ROC compound, in g/(g-mole)

MW_w = Molecular weight of water, in g/(g-mole)

MW_e = Molecular weight of the "e"th exempt organic compound, in g/(g-mole)

PP_C = ROC composite partial pressure at 20 C, in mm Hg

VP_i = Vapor pressure of the "i"th ROC compound at 20 C, in mm Hg.

27. "Rubber Camouflage Topcoat": A specially formulated epoxy coating, used as a camouflage topcoat for exterior submarine hulls and sonar domes lined with elastomeric material, which provides resistance to chipping and cracking of the rubber substrate.
28. "Sealant for Wire-Sprayed Aluminum": A coating of up to one mil (0.001 inch) in thickness of an epoxy material which is reduced for application with an equal part of an appropriate solvent (naphtha or ethylene glycol monoethyl ether), for use on wire-sprayed aluminum surfaces.
29. "Solid Film Lubricant": A very thin coating consisting of a binder system containing as its chief pigment material one or more of the following: molybdenum disulfide, graphite, polytetrafluoroethylene (PTFE) or other solids that act as a dry lubricant between faying surfaces.
30. "Specialty Interior Coating": An extreme performance coating used on interior surfaces aboard ships. This coating has fire retardant properties in addition to military physical performance requirements.
31. "Special Marking Coating": Any coating used for items such as flight decks, ships' numbers, and other safety or identification applications.
32. "Substrate Surface Cleaning": Cleaning of a substrate to remove dirt, oils, and other contaminants. Substrate surface cleaning is typically done prior to the application of surface coatings, adhesive bonding materials, or sealants. Stripping of cured

paints or adhesives is not considered to be substrate surface cleaning.

33. "Tack Coat": An epoxy coating of up to two mils thick applied to an existing epoxy coating that has aged beyond the time limit specified by the manufacturer for application of the next coat.
34. "Undersea Weapons Coating": A coating applied to any component of a weapons system intended for exposure to a marine environment and intended to be launched or fired undersea.
35. "Volatile Organic Compound" (VOC): Shall have the same meaning as Reactive Organic Compounds (ROC) as defined in Rule 2 of these Rules.
36. "Wired-Sprayed Aluminum": A molten aluminum coating applied to a steel substrate using oxygen fueled combustion spray methods.
37. "Wood Sealer": A coating formulated for and intended by the manufacturer to be applied to wood in order prevent subsequent coatings from being absorbed into the wood.
38. "Zinc-Rich Coating": A coating that contains more than 8 pounds of zinc per gallon of coating (as applied), used for the express purpose of providing corrosion protection.